

CLAIMS

What is claimed is:

1. A method of dynamically allocating memory when a program requests allocation of a memory block from a memory pool comprising steps of:
5 determining a spacer size;
reserving a spacer block of memory from the memory pool, the spacer block being of the spacer size; and
allocating the memory block, adjacent to the spacer block, from the memory pool.
- 10 2. The method of claim 1, wherein the spacer block is reserved only if a previously allocated memory block exceeds a predetermined threshold size.
3. The method of claim 2, wherein the spacer block is reserved only if a previously allocated memory block is of size divisible by a predetermined power of two.
- 15 4. The method of claim 3, wherein the predetermined power of two and the predetermined threshold size are parameterized such that they may be adjusted to optimize performance.
5. The method of claim 1, wherein the step of determining a spacer size generates a random spacer size within a predetermined range of allowable spacer size.
- 20 6. The method of claim 1, wherein the step of determining a spacer size operates according to a block's allocated count.
7. A computer program product comprising a computer readable media having recorded therein computer readable code for allocating memory, the computer readable code comprising computer readable code for executing steps of:
25 determining a spacer size;
reserving a spacer block of memory from a memory pool, the spacer block being of the spacer size; and

allocating a memory block of a requested size from the memory pool at a location adjacent to the spacer block.

8. A computer system comprising:

a processor;

5 a cache memory coupled to provide instructions and data to the processor;

a memory system coupled to provide instructions and data to the cache memory upon the processor initiating memory access operations that miss in the cache;

10 wherein the memory system contains a dynamic memory allocation module for allocating memory from a pool of dynamically allocable memory upon memory allocation requests made by a program, and wherein the dynamic memory allocation module comprises computer readable code for avoiding cache thrashing by performing steps when memory allocation is requested by the program comprising:

15 determining a spacer size to reduce a likelihood of multiple hot spots in allocated memory blocks aligning in the same sets of cache;

reserving a spacer block of memory from the memory pool, the spacer block being of the spacer size; and

20 allocating the memory block from the memory pool at a location in the pool adjacent to the spacer block.

9. The computer system of claim 8 wherein the spacer size is determined by randomly selecting a spacer size such the spacer size is in a range of permissible spacer sizes.

25 10. The computer system of claim 9 wherein the range of permissible spacer sizes is adjustable by a system administrator.